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## Notice of Allowability

Application No.

10/077,542

Applicant(s)

TORRES ET AL.

Examiner

Art Unit

Thomas R. Peeso

2132

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to application papers filed.
2. ☒ The allowed claim(s) is/are 1-9.
3. ☒ The drawings filed on 02152002 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All   b) ☐ Some\*   c) ☐ None   of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 08012002
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

Thomas R. Peeso  
Primary Examiner  
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### **REASONS FOR ALLOWANCE**

The following is an examiner's statement of reasons for allowance:

Applicant has claimed uniquely distinct features in the instant invention which are not found in the prior art, either singularly or in combination.

According to one aspect of the invention, a method is provided of embedding an information signal into a carrier signal that is generated by a non-linear dynamical system by modulating the rate at which the non-linear system evolves in a manner proportional to the information signal. The method includes multiplying the information signal by a constant to produce a first signal value. The method further includes adding the first signal value and a nominal rate of evolution of the dynamical system to generate a second signal value. The method further includes providing a feedback path that includes a first and second path, wherein the input to the first path is the integration of a multiplication of the second signal value and output of the second path, and the input of the second path is output of the first path, such that the second path is a first function that defines the non-linear dynamical system, and providing the output of the first path as input to a second function that produces a transmitted signal.

According to another aspect of the inventions a system for demodulating a transmitted modulated carrier signal is provided. The demodulator system includes an observer component that receives as input the transmitted signal and a rate estimate and produces an estimate of the current state of the transmitter. The demodulator system also includes a rate estimator that receives as input the transmitted signal and the estimate of the current state of the transmitter to produce the rate estimate. The observer component

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and rate estimator are interconnected in a feedback loop arrangement, and as shown below, this arrangement recovers the information signal assuming that the dynamical system possesses a local exponential observability property.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."



THOMAS R. PEESO  
PRIMARY EXAMINER